مذكرات المتخصص

جروب فريق أصدقاء الكمبيوتر

أ. ياسمين شعيب

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موقع الدكتور محمد رزق معلم الكيمياء التعليمي D.M.RAZK

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Lesson One: Green Technology

Concept of green technology:

It is occasionally referred to as **sustainable technology** or **clean technology**, as green technology is based on technological tools that help protect the environment, rather than causing harm, and optimize the use of its resources.

→ **Egypt** has shown a recent interest in utilizing **electric vehicles** as an **alternative to** traditional **fuel-powered cars**.

→ This shift aims to **decrease** the emission of harmful substances from car exhausts and **minimize** fuel consumption.

→ Electric cars operate **using batteries** and come with a charging station enabling connection to an external power source for recharging.

Areas of use of green technology:

Renewable energy	Energy conservation	Waste management	Water treatment
▪ Solar energy ▪ Wind energy ▪ Hydropower ▪ geothermal energy ▪ Bioenergy	▪ Green buildings ▪ Electrical appliances ▪ Smart transportation	▪ Recycling ▪ Organic waste conversion ▪ reduce waste	▪ Purification of polluted water ▪ Smart irrigation systems ▪ Water leak repair ▪ Use water-saving appliances

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Fields of using green technology:

1- Renewable Energy:

Solar energy	Wind energy	Hydropower	geothermal energy	Bioenergy
Using solar panels to convert sunlight into electricity	Using wind turbines to generate electricity from the movement of air	Using dams to generate electricity from the movement of water	Using geothermal heat to generate electricity	Using organic materials such as soybeans and corn to generate energy

2- Rationalization of energy consumption and responsible utilization:

- **Green Building:** The design and construction of buildings using ecofriendly, energy-efficient materials while enhancing ventilation and insulation.
- **Utilizing energy-efficient** appliances and high-efficiency computers.
- **Smart transportation:** utilizing electric vehicles to enhance energy efficiency within the transportation sector.

3- Waste Recycling:

- The recycling of materials like paper, plastic, and metals into new products.
- Transforming organic waste into nutrient-rich compost to enhance soil fertility.
- Reducing waste by reusing and repairing products

4- Water Treatment:

- Purifying contaminated water to be reused or drunk.
- Utilizing smart efficient irrigation systems like drip irrigation.
- Repairing water leaks and utilizing water-saving devices to rationalize water consumption.

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Benefits of green technology

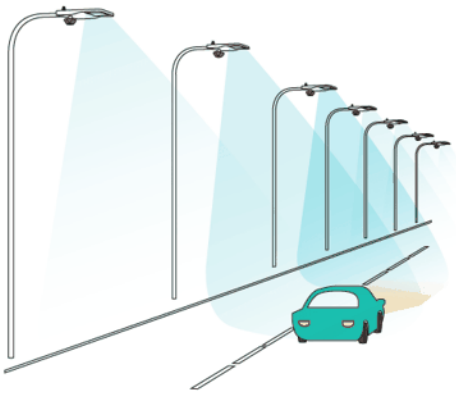
1- Preservation of the environment from climate change

The impact of vehicle emissions has raised the level of carbon dioxide in the atmosphere, intensifying global warming and resulting in environmental harm. This has prompted the development of transportation alternatives, like **electric cars,** that lessen this impact by lowering carbon dioxide levels and decreasing environmental pollution.

2- Resource Conservation (Water - Electricity)

Green technology aids in optimizing water and electricity usage through various means, including:

A - **Body sensors,** which detect the presence of a hand under the tap, control the flow of water by turning the taps **on**/**off**. This technology can optimize electricity usage in both residential and commercial settings by employing sensors to regulate lighting based on need.



B - **Solar energy** technology relies on photovoltaic panels to convert solar energy into electrical energy and operate **automatically** when required.

Sensors usages:-

Sensors are used in many tasks, including :

- regulating temperatures.
- operating the lights through various methods.
- detecting smoke from fires.

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Questions and exercises

Put √ Or × :-

1. Green technology tools contribute to the escalation of environmental pollution due to their utilization "Weekly Assessment" ( )
2. The concept of sensors in water faucets relies solely on automatically halting the water flow. ( )
3. Electric vehicles represent a form of environmentally friendly technology." Weekly Assessment " ( )
4. The concept of green buildings is attributed to institutions that can optimize their resource consumption. ( )
5. The idea of sensors in water taps depends only on stopping the water automatically. ( )

Choose The Correct answer: -

1. Green technology is called ..... technology

A sustainable B Traditional C Harmful

2. Electric cars are used to reduce.....

A shipping B Harmful emissions C congestion

3. .....is considered one of the benefits of recycling recyclable material

A reduce waste B Rationalization of resource consumption C Environmental protection

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Lesson Two: Digital transformation and its importance in our daily lives

Digital Transformation:

- The combination of digital technology into all aspects of business to enhance workflow efficiency, lower costs, and innovate products and services.
- Digital transformation: is a national project that moves Egypt to deal through an information environment that links all government agencies to each other.
- Citizens can obtain all their services through the internet and mobile applications, so that various services and products are provided to citizens in an easier and faster way.

The importance of digital transformation:

Digital transformation is crucial for organizations and businesses for various reasons, including:

1) Enhancing efficiency and productivity: through workflow optimization and error reduction results in time and effort savings, leading to cost savings.

2) Enhancing the quality of services and products offered to customers.

3) Enhancing sales and revenues: through accessing new markets and customers.

4) Innovation and creativity: Digital transformation significantly enhances innovation and development in institutions and companies to deliver new and quality products and services.

5) Sustaining competitiveness: through coping with the most recent technological advancements.

6) Enhancing decision-making: by offering timely data, information, and analysis to facilitate informed decisions.

7) Minimizing energy and resource consumption.

8) Creating new employment opportunities.

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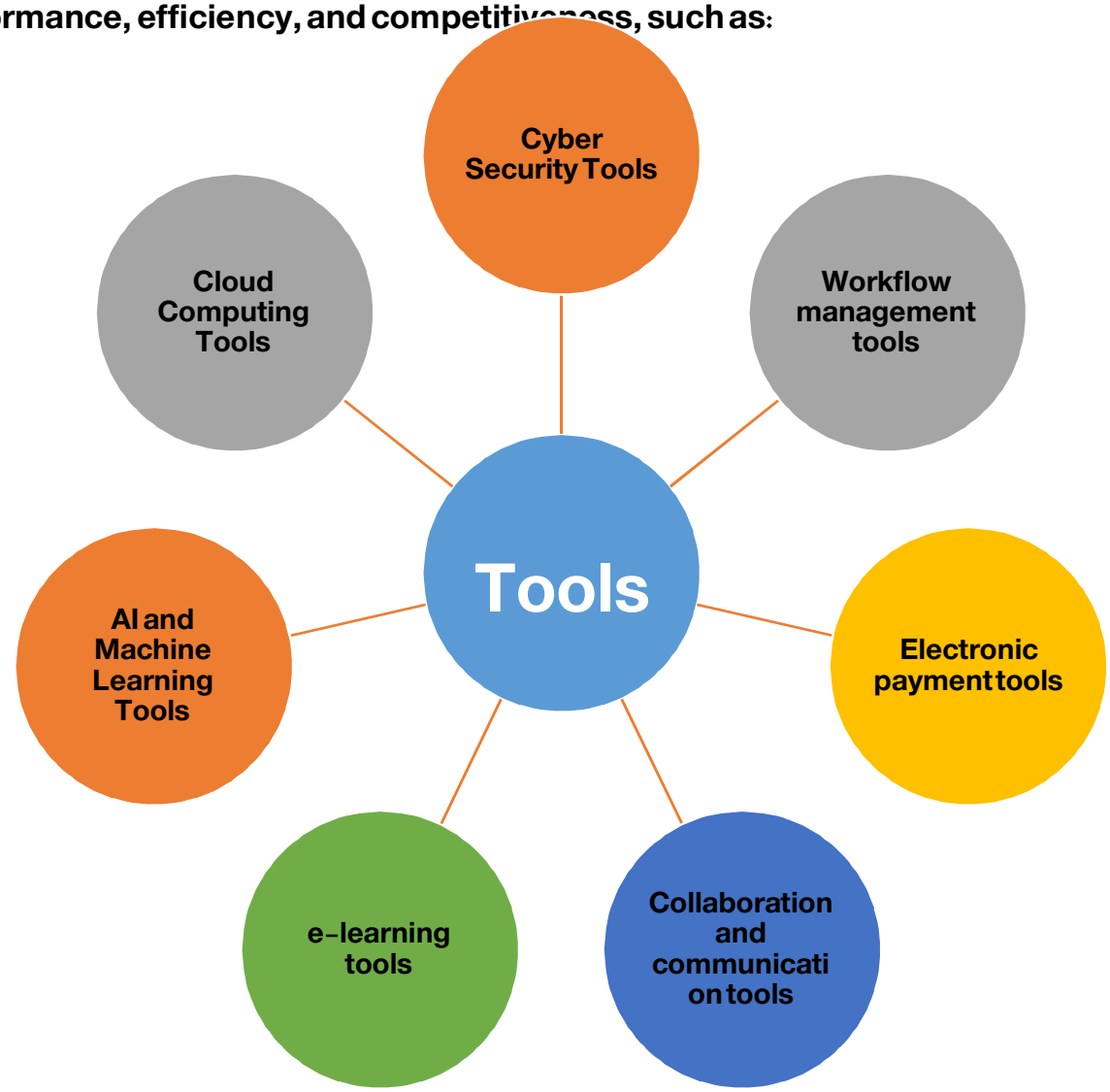
Digital transformation's Tools: -

Numerous digital transformation tools are accessible via programs, technologies, and services to help institutions and companies in enhancing performance, efficiency, and competitiveness, such as:



First- Tools for workflow management:

It enhances the efficiency of repetitive procedures and tasks, like the "Digital Egypt platform", which seeks to enhance government procedure efficiency and deliver improved services to citizens.

The "Digital Egypt" platform:

→ It is a governmental digital platform offering various electronic services to citizens, including bill payments for electricity and water...etc.

→ The application is accessible for download and use on mobile devices.

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Second- Electronic payment methods such as:

- Electronic payment cards:

Offer convenience by providing easy, fast, and secure electronic payment methods, simplifying electronic financial transactions for individuals .

- INSTAPAY application: for electronic payments: Licensed and sanctioned by the Central Bank of Egypt, enabling the transfer and reception of funds via a bank account or digital wallet, offering various facilities including bill payments.

Third- Collaboration and Communication Tools:

A video conferencing application - similar to Zoom & Google Meet - that enables face-to-face communication with others.

in order to access any digital services or products, an email address is required.

The relation between green technology and digital transformation:

→ Green technology and digital transformation are closely related, as each enhances the other and contributes to achieving common goals.

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❑ The most important common axes between green technology and digital transformation:

The most important common axes	Green Technology	Digital transformation
1. Enhancing resource efficiency	Decreasing the utilization of natural resources, like energy and water, through the adoption of more efficient technologies.	Reducing reliance on raw materials such as paper and pens, and minimizing waste.
2. reduce harmful emissions	Using renewable energy sources and enhancing energy efficiency.	Decreasing the necessity for transportation and mobility while enhancing the effectiveness of business transactions.
3. Sustainability Support	By protecting the environment and enhancing the quality of life for future generations.	By enhancing resource efficiency, decreasing emissions, and promoting innovation.

❑ Examples of the integration of green technology and digital transformation applications:

- Smart energy grids.
- Precision farming.
- Smart buildings.
- Smart transportation.
- Smart cities.

❑ Benefits of integrating green technology with digital transformation:

- Speeding up the process of the digital transformation.
- Enhancing the efficiency of green technology.
- Creating new employment opportunities.
- Improving the quality of life.

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Questions and exercises

Put √ Or × :-

1. Digital transformation does not contribute to innovation. ( )
2. Egypt Digital Platform helps to access services easily. ( )
3. Digital transformation helps improve communication with others. ( )
4. Digital transformation does not contribute to improved decision making. ( )

Choose The Correct answer: -

1- When using the Egypt Digital Portal, it is regarded as one of the...

a. piracy forms
b. digital transformation tools
c. irresponsible website usage.
d. electronic assault forms

2- Electronic payment applications can be used within the app...

a. INSTAPAY
b. Google Meet
c. WhatsApp
d. Email

3- .... is a common characteristic shared by green technology and digital transformation.

a. Challenges in digital communication between citizens and government services offered by relevant ministries.
b. Slow processes for acquiring digital services.
c. Access digital services rapidly and securely.
d. Vulnerability of data to hacking on the Internet.

4- Green technology and digital transformation tools work on...

a. increasing environmental resource pollution.
b. minimizing harm to the surrounding environment.
c. increasing the rate of raw materials consumption.
d. raising the costs of digital services.

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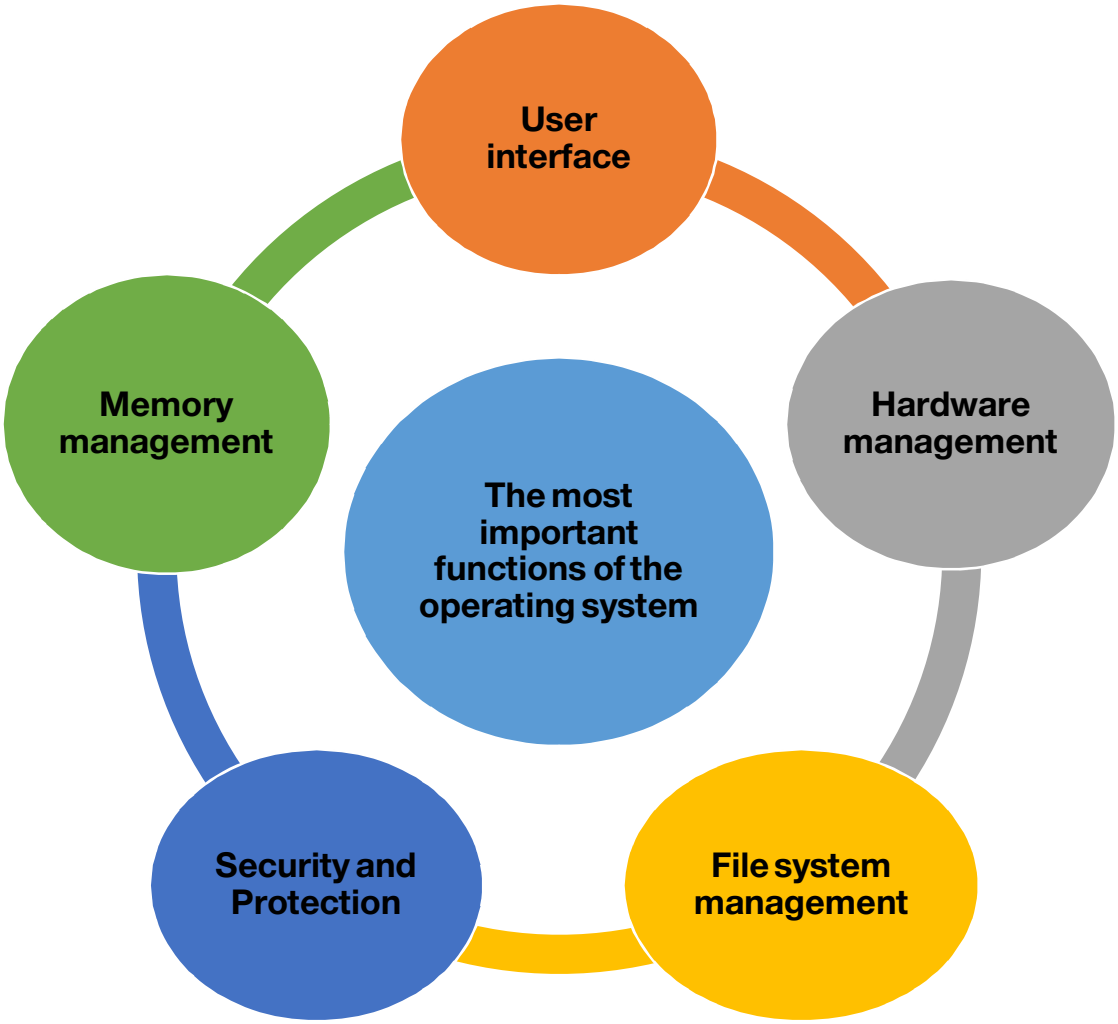
Lesson Three: Operating System

Operating system definition:

An operating system can be defined as:

- Interface between user, hardware and software
- Responsible for managing the hardware components and operating all software.
- Helping the user to accomplish his various tasks onthe computer easily and smoothly.

Operating system functions:



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Modern electronic devices, smart devices, and operating systems used in our daily lives:

Operating systems are necessary for the operating and managing a variety of modern electronic and smart devices.

Here are examples of modern electronic devices and smart devices, along with the operating systems used:

1- Personal computers (PCs)

Desktop and laptop computers use operating systems like

Microsoft Windows

MacOS

different distributions of **Linux.**

2- Mobile Devices:

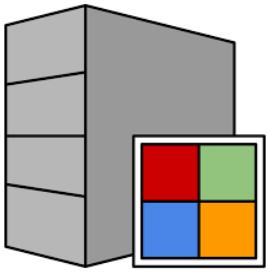
Smartphones and tablets depend on operating systems like:

- Apple's **iOS**
- Google's **Android** operating system.
- Alternative mobile operating systems.

3- Servers:

Servers use operating systems like:

- **Linux** operating system (with its diverse distributions)
- **Microsoft Windows Server** operating system
- Specialized server operating systems are used to manage network resources and deliver a range of services.



4- Gaming Consoles:

Gaming consoles such as **PlayStation**, **Xbox**, and **Nintendo** Switch feature exclusive operating systems tailored for gaming and multimedia purposes.

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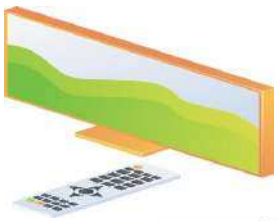
5- Smart TVs:

Smart TVs operate on various operating systems such as **Android TV**, **Tizen**, **webOS**, and others to offer smart advantages like streaming services, applications, and internet connectivity.



6- Wearable Devices:

Wearable devices like **smartwatches** and fitness trackers use operating systems tailored to their distinct functions and needs.

7- Network Devices:

Routers, **switches**, and other network equipment use operating systems for network management, settings, and security advantages

There are various operating systems used in:

modern cars..... **vehicles**..... **ATMs**..... **factories**

8) Automotive Systems:

Modern cars and vehicles often have operating systems to control various functions such as infotainment, navigation, and driver assistance technologies while driving and controlling the vehicle.

9) Embedded Systems:

Operating systems are used in embedded systems like:

- Automated Teller Machine (**ATM**)
- Point of Sale Terminal (**POS**)

Point of sale terminals are **electronic devices** that enable customers to pay for **purchased products** by deducting the price from their **bank account** instead of using cash.

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10) Industrial Control Systems (ICS)

It is a broad term that includes many industrial control systems and devices
used in industrial facilities to control the performance of machines and industrial processes.

Industrial control systems work on the following:

- **Control and monitor the progress of industrial processes**, which increases factory productivity and improves the quality of manufactured products.
- **Provide a safe environment for health and operational safety** by reducing exposure to hazardous materials or environments such as chemical plants, water and waste treatment centers, nuclear power plants, and refineries.
- **Industrial control systems are used in most industrial sectors** such as energy, transportation, food and petrochemical production, electronics, medical industries, and many other industries.

These previous examples illustrate a wide range of devices that depend on operating systems to manage the resources of modern electronic devices and smart devices to run applications and provide users with a platform to interact with the device.

Desktop: –

- It is the opening screen of the operating system.
- It consists of a set of icons called **ICONS** .
- Icons appear over a background called **the Background** .

Background **is** an image or color that the user selects.

- There are **bars** It contains icons that represent software installed on the operating system and other icons to adjust some settings. System such as date, time, sound and network settings.

– The startup screen varies for different operating systems.
– The startup screen varies for the operating system according to the version of the operating system.

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Questions and exercises

Put √ Or × :-

1. A word processing program manages the computer hardware components. " Weekly Evaluation " ( )
2. Device security and protection are inherent features of the operating system. ( )
3. Desktop computers use operating systems such asMS Windows ( )
4. Smart TVs operate on platforms like Android TV and Tizen Weekly " " Review ( )

Choose The Correct answer: -

1- The ..... software is responsible for managing the hardware components and running all other software

A Antivirus B Operating systems C The painter

2- Servers use operating systems such as.....

A Android B Linux C Mac OS

3- Operating systems such asTizen – webOS – Android TV and others are used with .....devices

A Servers B Smart TV C Printing

4- .....devices are network equipment that require an operating system to operate

A Router B Smart TV C Printing

5- Most modern cars and vehicles have operating systems to control In different jobs such as.....

A Information and navigation systems B Points of sale C ATMs

6- .....is an electronic device through which the customer can pay for the products he has purchased

A Point of sale terminals B ATMs C Industrial control systems

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Lesson Four: Installation and removal of software and digital peripherals

❑ While you are preparing and getting ready to implement your project on your computer or mobile, you will need to use : Many programs You must ensure that these programs are present on the device. If the operating system does not have the program you need, you can obtain the program, either:

- From one of the storage units
- By downloading online

❑ You can then install the software on your computer to use it.

❑ How you start the installation process depends on the form in which the software comes:

– If you purchased the program, the program comes on a CD or DVD, and you use this CD to install the program.

– On the other hand, if you downloaded the program from the Internet, the program is in the form of a file, and this file is used to install the program.

❒ First: Installing the program from a CD or DVD.

1. Insert the software disc into your computer CD or DVD drive. The AutoPlay dialog box will appear. The following screen displays one of the processes that takes place in Windows 7 .

2. Click Run SETUP.EXE, where SETUP.EXE is usually the name of the installation program.
3. Follow to the installation instructions provided by the software .

Note: Installation procedures differ from one program to another.

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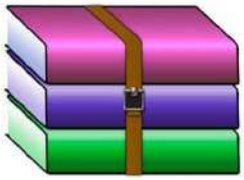
❒ Second: Installing the program from an Internet-downloaded file:

Use the "This PC" icon to access the downloaded file.
Double-clicking the file starts up the installer.
Dear student, the downloaded file may be compressed. You need to unzip it before accessing the file and selecting the SETUP.EXE icon.

❒ Third: Installing the program from a compressed file.

Install the compressed program by the following steps:
Extract the compressed files.
Next, double-click the installation file.
Follow the installation instructions provided by the software.



❒ Remove or uninstall a program:-

- The program does this itself, as many programs come with their own removal or uninstallation command.
- Or through the Control Panel, where the operating system helps you uninstall the program.

Note: Removing unused programs saves disk storage space and speeds up and eases the use of the device.

❒ Steps for uninstalling a program on the device:

1- Access the **Control Panel** window.
2- Clicking on "**Uninstall a program**" will prompt the window displaying installed programs to appear.
3- Click on the program you wish to uninstall, then select Uninstall.

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❒ Installing a new device

→ In many cases, new devices include:-

* CD or DVD for setup that contains driver files and utility programs.

The Setup program automatically copies the driver files and the setup information file (.inf) into a dedicated folder.

Plug and Play Device Installation

First: When the operating system includes a driver that matches the new peripheral device.

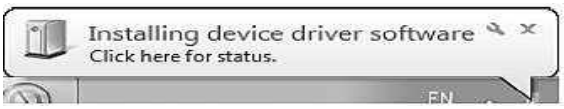
1- Modern operating systems include a list of drivers for many peripheral devices.

2- When you connect a new Plug and Play peripheral for the first time, the operating system detects the new peripheral and searches its list of drivers

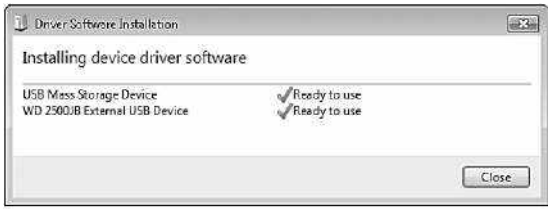
3- If it finds a matching driver for the new peripheral

4- It installs the correct driver file(s)

5- makes other necessary adjustments to the system without any intervention from you.



The operating system presents a notification to the user identifying the connected device.



Message showing successful device installation

Second: When the operating system does not include a driver that matches the new attached device:-

- When the operating system detects a new plug-and-play device after (plugging it into a USB port for Example)
- But the operating system could not identify the driver. Suitable for this new device
- The operating system runs a wizard program to find the driver for the new peripheral device.
- And you can Determine where the driver for the new peripheral is located, whether it is on an optical disc CD or one Other storage units

First: Install a local printer) i.e. directly connected to the computer (that supports the plug and play feature.

It is connected to the port USB and the plug and play feature will automatically install.

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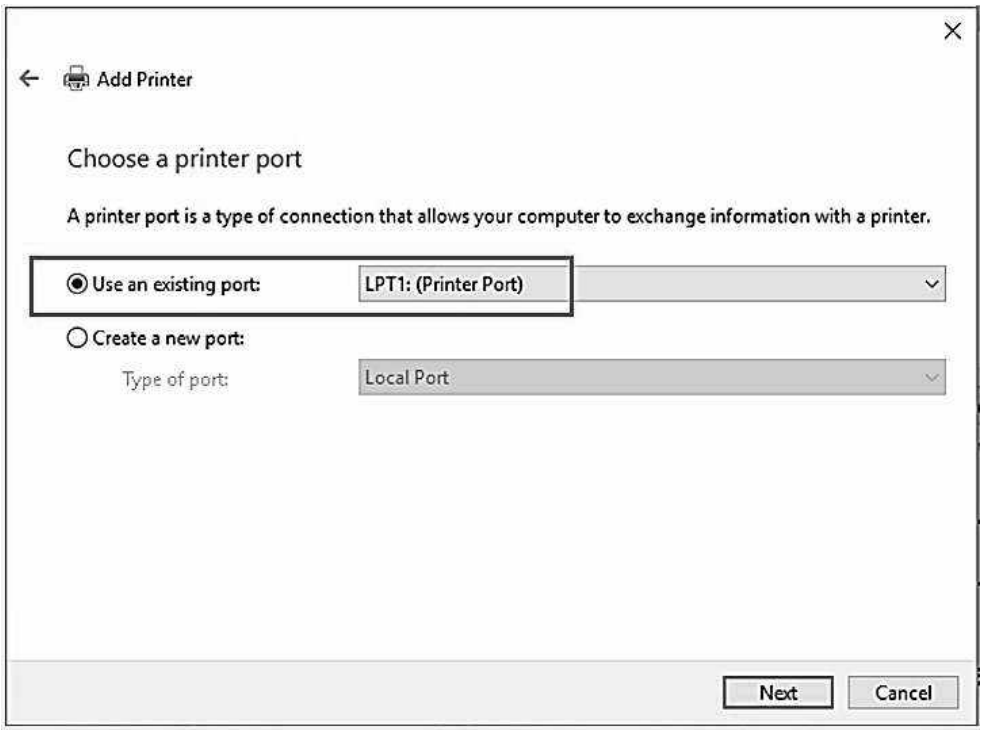
Second : Installing a printer that does not support the plug and play featureNon-Plug and Play Print

1- We open the controlpanel
2- We choose from themHardware and sound
3- Open Devices and Printers Devices and Printers
4- Click Add PrinterAdd a printer
5- We press The printer that I want is not listed
6- We choose Add a local printer or network printer with manual settings

To complete the setup process:

- First you need to determine which port your printer is connected to, for most older printers that connect to a parallel port the correct choice is the LPT1 port, while modern printers use the USB port


Add Printer
Choose a printer port
A printer port is a type of connection that allows your computer to exchange information with a printer.
Use an existing port:
LPT1: (Printer Port)
Create a new port:
Type of port:
Local Port
Next
Cancel

- Click „Next' to choose the appropriate driver.
- From the list of drivers available in the Driver Store you can choose the one that is compatible with your printer type.

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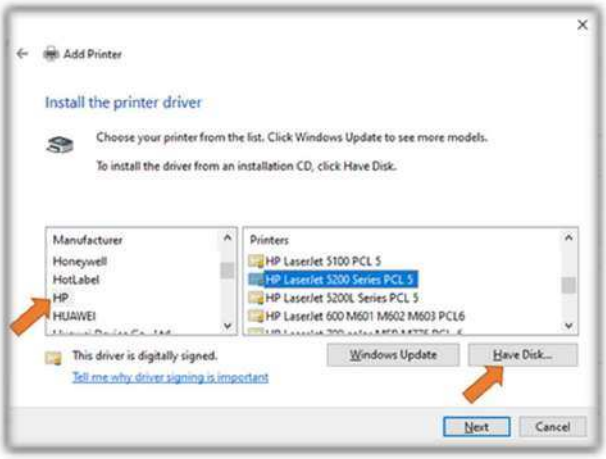


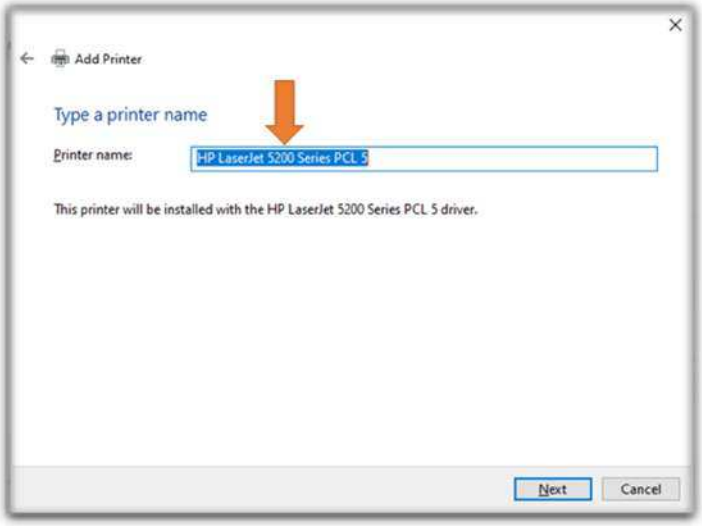
Definition of HP LaserJet 5200 Series PCL 5 Printer Driver

→ If you don't find the driver you need

- Click Have Disk.
- Browse your storage devices for the driver you need.
- If you don't have a driver to identify your printer, or if you suspect that a newer version is available, click Windows Update to update the list of printers.

→ After the update is complete, check the list again to see if your printer model is available.

→ The last step in the printer setup process is to give the printer a name. The default name usually includes the manufacturer and model of the printer; you can change this value to a more descriptive name now or later.


Add Printer
Type a printer name
Printer name:
HP LaserJet 5200 Series PCL 5
This printer will be installed with the HP LaserJet 5200 Series PCL 5 driver.
Next
Cancel

After the printer installation process is completed successfully, the wizard provides the ability to print a test page to ensure that the printer is working properly. correct

Note: If the printer driver package includes a setup program, run the setup program and through it you can identify the printer within the operating system.

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Questions and exercises

Put √ Or × :-

1. Removing unused programs increases the storage space on the disk ( )
2. Operating systems support many devices attached to the computer such as the printer and webcam . ( )
3. To uninstall the program through the control panel ( )
4. The operating system helps you uninstall the program. ( )

Choose The Correct answer: -

1) Removing a program means that you are .....

A- Copying all the program files to the computer.
B- Deleting all the program files from the computer.
C- Pasting all the program files to the computer.
D- Saving all the program files from the computer.

2) Many programs come with a command .....

A- Copy their installation
B- Uninstall their installation
C- Paste their installation
D- Compress their installation

3) Removing unused programs leads to .....

A- Slowing down the computer
B- Saving storage space
C- Difficulty in using the device
D- Stopping the computer

4) When the operating system automatically detects a new peripheral device, it .....

A- deletes the driver for the peripheral device
B- install the appropriate driver for the peripheral device
C- shut down the computer
D- restart the computer

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Lesson Five: E - Mail

❒ Definition of Email:-

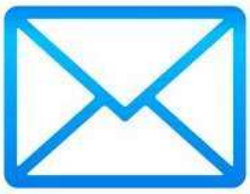
- It is a digital communication system used to send and receive messages between users over the Internet.
- It is one of the cloud computing tools.
- It is used to share texts, files, images and other information.
- It is one of the most popular means of communication in the world.
- It is one of the indirect communication tools

❒ Components of E-mail address

An email address consists of three main components:

1- User name:

It is the part that is located at the beginning of the email address, and it is a name that the user chooses and specifies. The user name is a unique and distinctive name that is not reserved by anyone else.



2- The @ symbol (at sign):

It is a symbol that separates the user name from the name of the email server (domain name) used.

3- Domain name:

It is the name of the email server that hosts the email account and is a place to store your email messages.

❒ Advantages of using email

- **Speed:** Sending and receiving messages very quickly.
- **Cost:** Free in most cases.
- **Ease:** Easy to use with the ability to send a message to any number of recipients at the lowest cost.
- **Diversity:** Texts, files, images and other information can be shared.
- **Reliability:** Messages arrive reliably in most cases.
- **Digital services:** Registration is done using email on the websites of service providers and digital products online.

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❒ Drawbacks of using email

- **Hacking:** It can be hacked by hackers.
- **Spam:** You may receive unwanted messages.
- **Fraud:** You receive fraudulent messages.
- **Viruses:** Some emails may contain viruses or malware.
- **Privacy:** Emails may not be completely secure

❒ Providers of Email Services

There are many free email providers available such as:

- Gmail
- Yahoo Email
- Hotmail/Outlook

❑ Create an email on Google : –

- Google offers you many electronic services, including the email service.
- To create an email through the Gmail service and obtain other Google services, you must create a Google Account.
- A Google Account consists of a user name and a password.

❑ Advantages of creating a Google account

You can create a Google account by signing up for Gmail. A Google account also allows you to use other Google features and services such as:
YouTube , Google Drive, Google Docs, Google Meet.

❑ Steps to create a Google account :

1- Download Google website: https://www.google.com.eg

2- Click Sign in .

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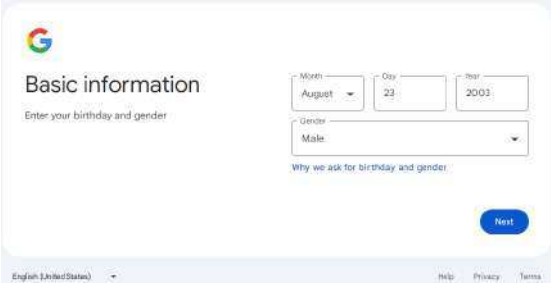
3- Click Create Account .

4- To establish a Google account, choose "Create my personal account ".

5- Enter your first name First Name and Last Name Last Name then click Next.

6- Enter your date of birth and gender, then click Next.



7- .Type the username you want in the Username field Username then click Next

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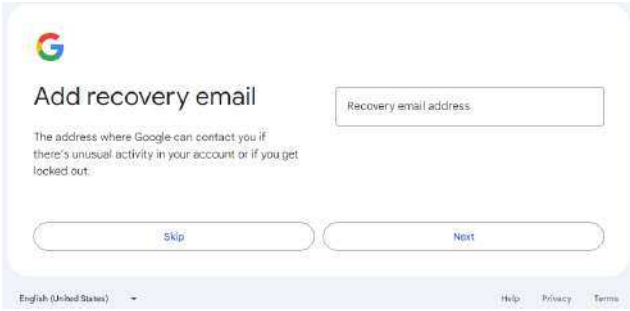
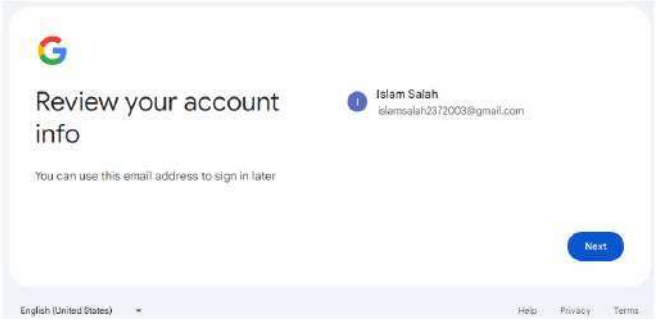
8- Choose the password you want, and confirm it again, making sure it is difficult to guess.

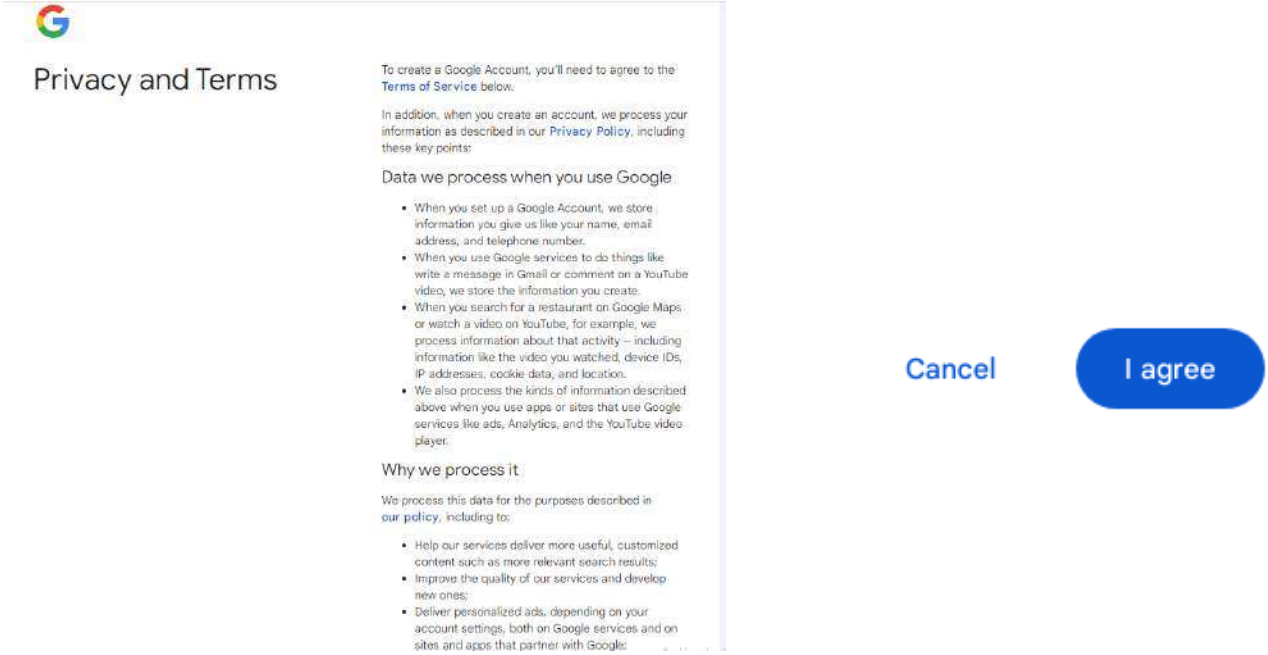
9- .Enter an alternate email address Alternate email address is used to recover the account and you can skip it. that



10- Check and confirm your email address.



11- To complete the steps to create your email, review the terms of service and click 'I agree' if you accept them.


Privacy and Terms
To create a Google Account, you'll need to agree to the Terms of Service below.
In addition, when you create an account, we process your information as described in our Privacy Policy, including these key points:
Data we process when you use Google
When you set up a Google Account, we store information you give us like your name, email address, and telephone number.
When you use Google services to do things like write a message in Gmail or comment on a YouTube video, we store the information you create.
When you search for a restaurant on Google Maps or watch a video on YouTube, for example, we process information about that activity – including information like the video you watched, device IDs, IP addresses, cookie data, and location.
We also process the kinds of information described above when you use apps or sites that use Google services like ads, Analytics, and the YouTube video player.
Why we process it
We process this data for the purposes described in our policy, including to:
Help our services deliver more useful, customized content such as more relevant search results;
Improve the quality of our services and develop new ones;
Deliver personalized ads, depending on your account settings, both on Google services and on sites and apps that partner with Google;
Cancel
I agree

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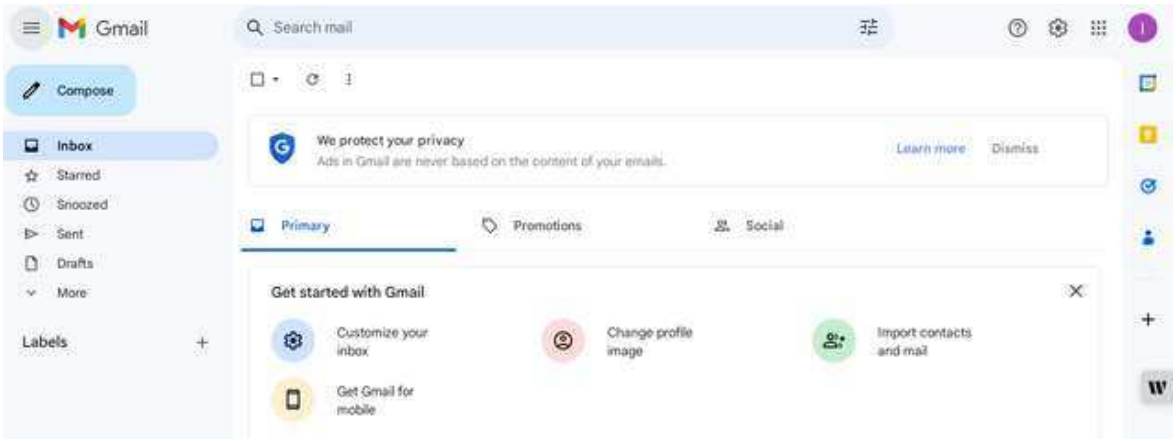
12- Now that you have a 'Google Account' (username and password), you can use your 'Google Account' to access your email or many of the services provided by 'Google'.

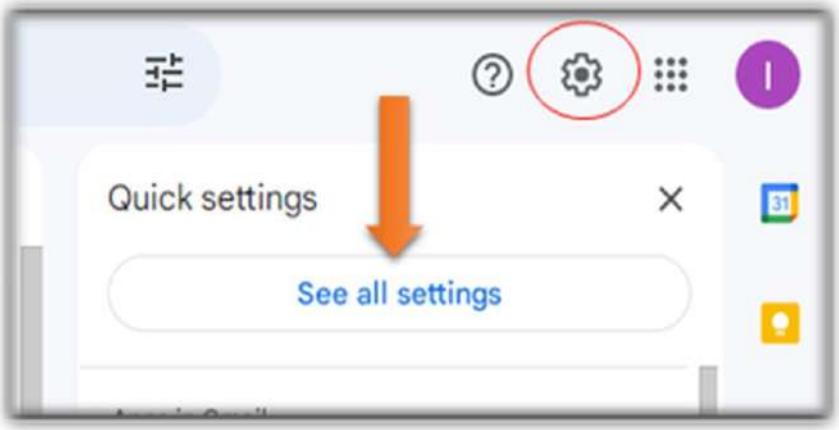
Google

❑ Gmail email interface

The default appearance of the Gmail email window is as follows:



The interface language can be modified by selecting the settings icon and then choosing 'See all settings'.



From the "General" menu, select the Arabic language under "Gmail display language".

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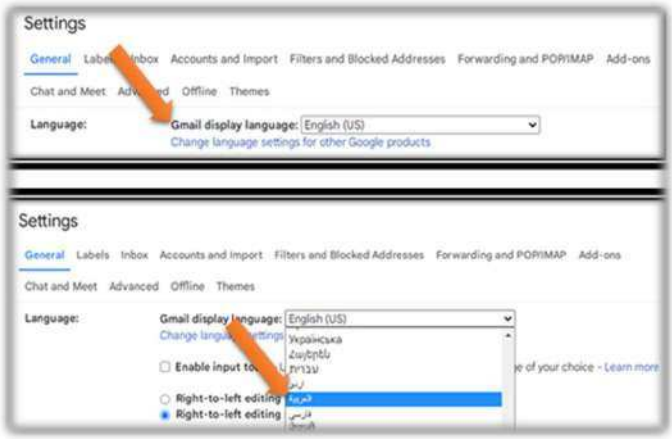
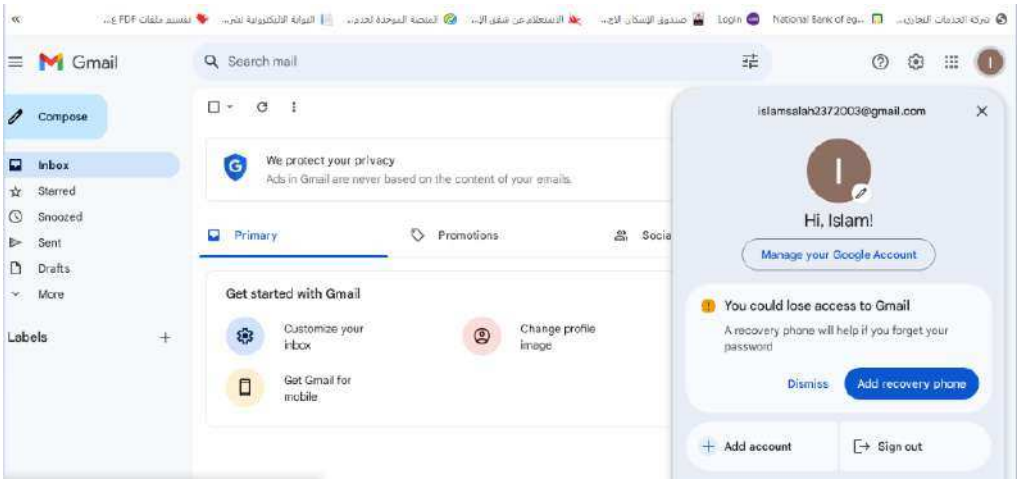


☐ Only send a response to people in my Contacts

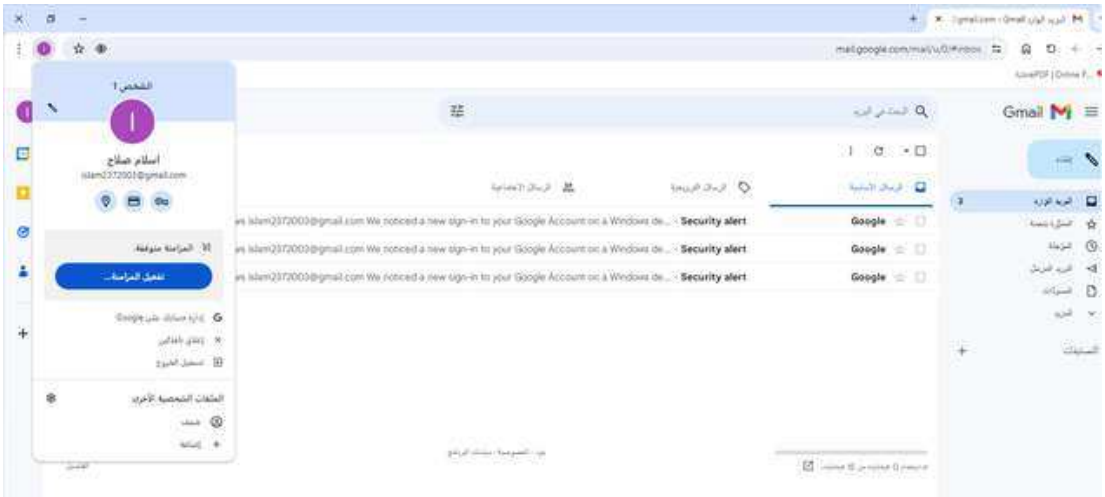
Save Changes | Cancel

When you choose the Arabic language and click the 'Save Changes' button, the Gmail email window interface appears in Arabic as shown below:



❑ Sign out of your Gmail account

Click on your profile picture icon and then choose 'Sign out'



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Questions and exercises

Choose The Correct answer: –

1) Email is a.....
A- manual communication system
B- digital communication system
C- direct communication system
D- virus system

2) Through email, you can .....
A- delete files
B- use cloud computing applications
C- install programs
D- print files.

3) One of the most important uses of email is .....
A- scan papers
B- to share information.
C- cyberbullying
D- delete files on your device

4) One of the advantages of using email is .....
A- speed in sending and receiving messages very quickly.
B- spam
C- fraud
D- viruses

5) Email is considered .....
A- one of the direct communication tools.
B- one of the indirect communication tools.
C- manual communication system
D- text file

6) One of the disadvantages of using email is .....
A- Speed
B- Cost
C- Ease
D- Hacking

7) From email service providers .....
A- Gmail
B- Paint
C- Google Docs
D- YouTube

8) To get one of the Gmail services, you must create .....
A- Text file
B- "Google Account"
C- Presentation file
D- "Google Meet"

9) To log out of your Gmail account, click on the ..... icon.
A- Sign in
B- Sign out
C- Shutdown
D- Close

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Lesson Six: Cloud Computing

Cloud computing:

It is a model for providing digital services over the Internet. Such as:

- **Cloud storage service or computer storage:** Is storing files and folders over the Internet.
- **Software service (applications) over the Internet:** is making software (applications) available over the Internet.
- **Electronic resource sharing service:** is sharing and exchanging files with others over the Internet.

Benefits of Cloud Computing:

1- **Ease of access:** Cloud computing services can be obtained without the need to own a computer or mobile phone, ... with high specifications, whether as hardware or software components.

2- **Availability of the service:** The user can access his data, files and applications from anywhere where the Internet service is available.

3- **Reducing material costs:**

a. There is no need to purchase software licenses.

b. There is no need to purchase hardware components with high specifications.

4- **Sharing digital resources with others.**

Areas of using cloud computing applications in daily life:

Some examples of areas of using cloud computing applications in daily life

1-Communication:

- **Email:** Use cloud email such as Gmail, Outlook, and Yahoo Mail daily to communicate with family, friends, and colleagues.
- **Social networking:** We communicate with others and share content on social media platforms such as Facebook, Twitter, and Instagram
- **Messaging services:** We use messaging applications such as WhatsApp and Telegram to communicate and share files and photos.

2- Computer storage:

- **File storage services:** We use services such as Google Drive and One Drive to store, share, and access files at anytime and anywhere.

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❑**Data backup:** We use cloud backup services to protect our data from loss in case of any damage happens to our devices.

3-Producing projects by using:

❑**Word processing programs:** We use cloud word processing programs such as Google Docs, Microsoft Word Online to create, edit and share documents with others.

❑**Spreadsheets:** We use cloud spreadsheets such as Google Sheets and Microsoft Excel Online to organize and analyze data and create charts.

4-Education:

❑**E-learning platforms:** We use e-learning platforms to access educational materials and interact with teachers and students such as the Ministry of Education platform.

❑**Collaboration tools:** We use cloud collaboration tools such as Google Classroom and Microsoft Teams to work on projects and assignments with others.

5-Entertainment:

❑**Video streaming services:** We enjoy watching movies, TV shows and programs on video streaming services such as YouTube.

❑**Video games:** We play video games online on cloud platforms.

❑**Cloud music services.**

6-Other areas:

❑**Online shopping:** We shop through e-commerce sites.

❑**Online banking:** We use online banking to transfer money and pay bills.

❑**Healthcare services:** Cloud computing is used to store medical records.

»» Data processing and storage in cloud computing

Data processing and storage in cloud computing depends on a huge infrastructure, the steps of data processing and storage in computing can be summarized as follows:

1- **Data collection** from different sources.

2- **Data transfer** to cloud data centers.

3- **Data processing** in cloud data centers and through powerful servers.

4- **Data storage:** Data is stored on high-capacity storage units in cloud data centers.

5- **Data management:** Data is managed by database management systems in cloud data centers.

»» Requirements to obtain cloud computing services:

1- A computer or mobile phone.

2- An internet browser or application.

3- An internet connection.

4- Create an account with one of the

»» computing service providers.

The most famous cloud computing service providers:

❑**Amazon Web Services** ❑**Microsoft Azure** ❑**Google Cloud Platform**

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Questions and exercises

Choose The Correct answer: –

1- Cloud computing is known as a model for providing .....

A- Presentations B- Digital services over the Internet.
C- Google Docs D- Google Classroom

2- The computer storage service is .....

A- Storing files and folders locally on the computer.
B- Storing files and folders over the Internet.
C- Sharing and exchanging files
D- Google Classroom

3- The software and application service over the Internet is known as .....

A- Enabling the use of software and applications over the Internet.
B- Enabling the use of software and applications without the Internet.
C- Sharing and exchanging files locally
D- Email service

4- The service of sharing electronic resources via computing is known as ....

A- Computer storage
B- Sharing files and folders locally on the computer.
C- Sharing and exchanging files with others over the Internet.
D- Email sharing

5- Communication is one of the areas of using cloud computing in daily life, and is done through .....

A- Email B- Software and applications.
C- Computer storage D- Google Sheets

6- Services for storing, sharing and accessing files at any time and from anywhere are called .....

A-Email B-Software and applications.
C- Computing storage D- Google Sheets

7- We use cloud word processing programs such as .....

A-Google Docs B- Google Sheets
C- Google Classroom D- Google Cloud Platform

8- We use cloud spreadsheets such as .....

A-Google Docs B- Google Sheets
C- Google Classroom D- Google Cloud Platform

9- We use cloud collaboration tools such as .....

A-Google Docs B- Google Sheets
C- Google Classroom D- Google Cloud Platform

10- The most famous cloud computing service providers are .....

A-Google Docs B- Google Sheets
C- Google Classroom D- Google Cloud Platform

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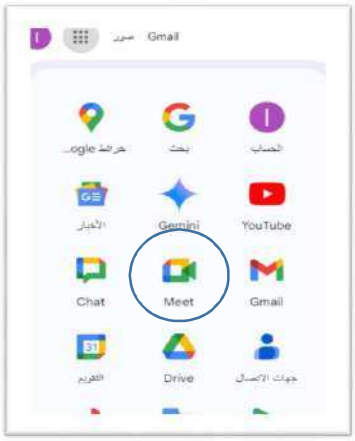
Lesson Seven: Google Meet and Project Management

Google Meet

It is a video conferencing service developed by Google that enables users to:-

- ❑conduct group video calls
- ❑share screens
- ❑chat
- ❑collaborate in real time
- ❑work together on joint projects among students.



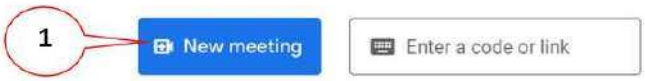
How can you access "Google Meet"?

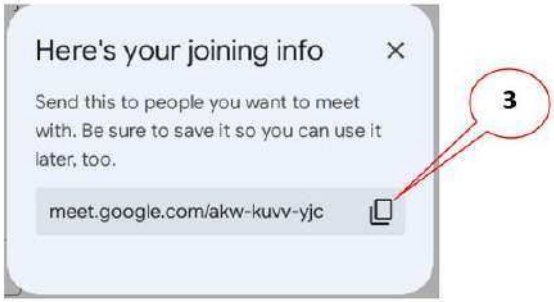
- ❑From your PC via the link https://meet.google.com
- ❑By downloading the "Google Meet" application for Android devices using the Google Play Store

You can start an instant meeting in "Google Meet" by:

Going to the main page of the "Google Meet" application and follow these steps:

1. Click on the "New meeting" button.
2. Click on Start an instant meeting
3. Click on the copy icon to share the meeting link.
4. Send the meeting link to the participants via one of the communication tools (email - WhatsApp




Here's your joining info
Send this to people you want to meet with. Be sure to save it so you can use it later, too.
meet.google.com/akw-kuvv-yjc
3

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Second – Create a meeting for a later time:

The "Google Meet" application also enables you to create a meeting for a later time, and keep its link until the time you want to meet with whomever you want to invite to attend:

- ❒ Follow the same previous steps to create an instant meeting
- ❒ Click on "Create a meeting for a later time".
- ❒ A small window will appear with a link to the session.
- ❒ Copy the meeting link.
- ❒ Send the link to the people you want to hold the meeting with.

Sometimes, you may need to approve the request of invitees to join the session, in other words, when the invitee tries to access your session, you will see a notification at the top of the page through which you can accept or reject the person's joining.

Joining a meeting in "Google Meet"

If you are invited to attend a meeting session using "Google Meet", using a link:

- ❒ If the link is sent to you to join a session on "Google Meet", you can access the session by clicking on the link directly.
- ❒ Sometimes, when you click on the meeting link, it may take some time to join until the meeting organizer approves your request to join the meeting.
- ❒ If you are invited to a meeting through a link, you should not send the meeting link to someone else, and you must ask the meeting owner's permission

Here are some options and features you can use during the meeting:

General rules to follow during the meeting

- ❒ While one participant is speaking, the rest of the participants must listen and turn off the microphone.

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❒Raising your hand in the session to ask to speak

help organize sessions, talk and intervene in an organized and smooth manner.

❒When you are allowed to speak, the microphone icon will open and you can speak.

❒Send messages in the session to participants

While you are in a Google Meet session, you can communicate with the attendees by sending messages to the participants in the session by clicking on the "In call messages" icon at the bottom of the page.

❒Sharing the presentation with participants

You can share your entire screen with participants or a specific window at the bottom of the page, click on the "Share screen" icon now

Click on one of the tabs (entire screen, window or tab) and then click on the Share button.

❒Stop sharing presentation

In the Google Meet window, click "Stop sharing."

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Questions and exercises

Choose The Correct answer: –

1– "Google Meet" is .....

A– Audio–only service B– Voice–only service

C– Storage service D– Video conferencing service

2– Through ..... you can make calls, group video, share screens, and chat.

A– "Google Account" B– "Google Docs"

C– "Google Meet" D– "Google Drive"

3– To access the "Google Meet" service, you must have .....

A– "Yahoo account" B– "Google account"

C– Bank account D– Electronic wallet

4– The "Google Meet" application is considered one of the ways of ..... communication.

A– Indirect B– Direct

C– Slow D– Difficult

5– One of "Google Meet" Features is.....

A– Sharing screens B– Talking at any time

C– Indirect communication D– Slow communication for audio and video

6– To express your opinion in an organized manner during a "Google Meet" meeting, you can click on .....

A– Meeting link B– Hand icon

C– Talk at any time D– Exit before the end of the meeting.

7– One of general rules that must be followed during the meeting is.....

A– Talking at any time

B– Listening, hearing and turning off the microphone

C– Giving the meeting link to anyone

D– Leaving before the end of the meeting.

8– To invite others to a Google Meet meeting, you must send them .....

A– Meeting address B– Meeting link

C– Meeting image D– Your home address

9– To create a meeting next week through Google Meet, you choose .....

A– Start an instant meeting B– Meeting for a later time

C– Stop sharing the presentation. D– Sharing

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Lesson Eight: Database Design

Databases:

❒ A collection of data and information organized and linked to each other. It is similar to a library in which books are kept, but instead of books, data and information are stored.

❒ A database is used to store and retrieve information easily and efficiently. Information is stored and managed digitally using dedicated programs and applications.

The importance of databases in our lives:

1- Saving students' information at school including name, date of birth, home address, etc.

2- Saving medical records in hospitals including information like the patient's name, address, attending physician's name, and the date of patient's last visit.

3- Tracking inventory in stores including product name, manufacturer, manufacturing date, and price.

Advantages of using databases:

- Organization: Easy storage and retrieval of data.
- Efficiency: Quick access to data.
- Accuracy: Ensuring data validity and reducing errors.
- Security: Protecting data from unauthorized access.
- Sharing: Making data available to multiple users.

Uses of databases in:

- Websites: such as storing user and product data.
- Data analysis: such as analyzing big data and extracting knowledge.
- Scientific research: such as storing and analyzing experimental data.
- Business applications: such as customer relationship management systems, and enterprise resource planning systems.

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Big Data

❒ The term Big Data refers to very large and diverse sets of structured, unstructured and semi-structured data that continue to grow significantly over time.

❒ These data sets are so large and complex in terms of size, growth rate and diversity that traditional data management systems cannot store, process and analyze them.

❒ The amount of data is increasing and growing rapidly due to the rapid development of digital technologies, such as artificial intelligence (AI), and the Internet of Things (IoT).

❒ As data continues to increase, expand, and spread, new big data tools are emerging to help companies collect, process, and analyze data at the speed needed to get the most out of it.

Data Table:

Concept of data table:

❒ A data table is a basic element in building databases and is the only source of data within the database.

❒ A data table consists of rows and columns, where each row represents a single record of data, and each column represents a specific field of data

Creating a Data Table:

Many programs can create data table, such as a "student grades" data table.

S	Student name	Arabic	English	Computer
1	Amro	19	18	19
2	Yasmine	20	17	16
3	Ramy	15	19	14
4	Samar	17	18	16

Programs used to create a spreadsheet: –

❑ With word program→You can create a simple table but you cannot get a record of all the students It is used to create a simple ."whose names include the letter "Y spreadsheet.

❑program →Excel can sort and arrange student grades and perform simple calculations. But Excel .is difficult to use if you have a large amount of complex data

❑ program →Microsoft AccessIt is one of the applications used to create databases. It builds a database. Real data, where you can build complex data structures and manage them more effectively. Efficiency

We useMicrosoft Access when:

❑ You have a large amount of complex data.

❑ You need to create relationships between data.

❑ You want to create custom applications to manage the data.

❑You need higher data security

You can create a database called " Student Results " by following these steps:

Computer:

√Open the application Microsoft Access

√ Create a database called "Student Results"

√ Write down the steps you took

1- Open the software application Access

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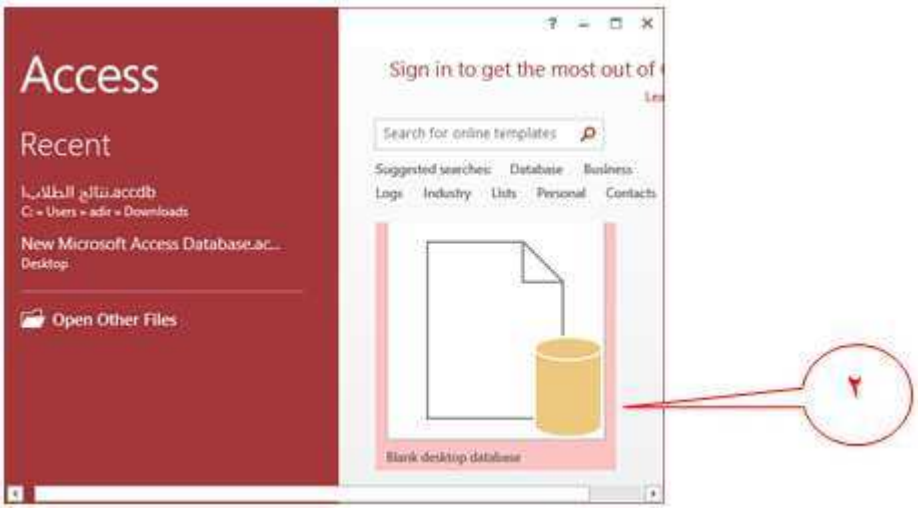
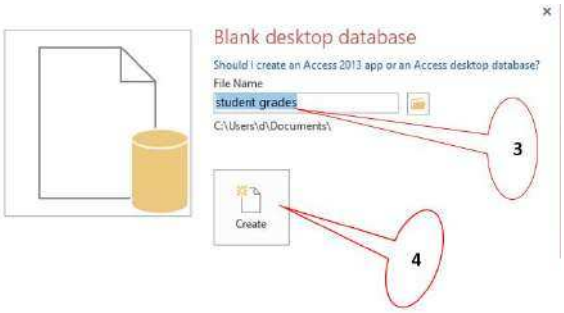
2- Choose **Blank desktop database** This is to create New empty database



3- Type a name for the database, which is "**Student Results**"

4- Click "**Create**"

A database will be created under the name "**Student Results**"



Steps to create a Table in Access:

You can create a Table in Access by doing the following:

A- Table Design: To write the names of the table fields and specify their data type.

B- Datasheet View: To enter and display the table data.

A- Table Design:

To choose the "Table Design" style, follow the following steps:

1- Choose "**CREATE**".

2- Choose the "**Table Design**" .

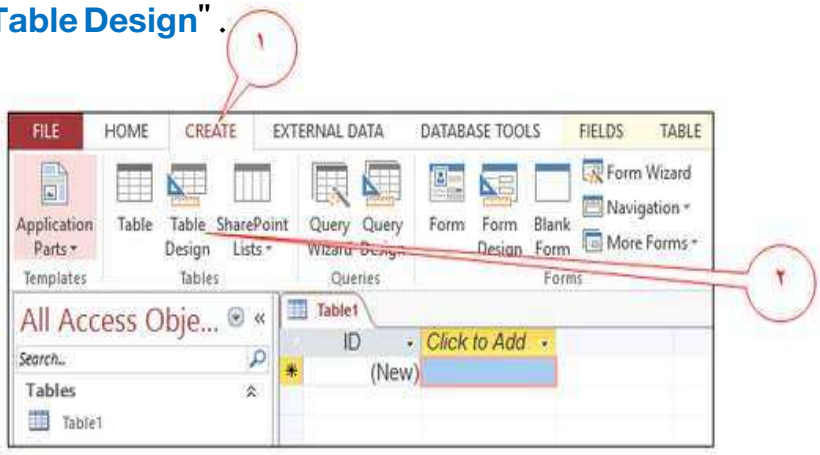


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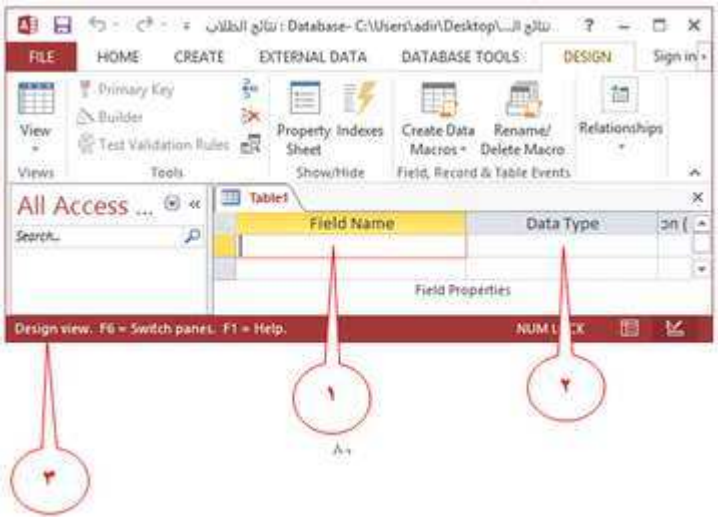
Table Design Window Interface:

The Table Design window opens, and consists of:

1- To write the field name

2- To choose the statement type

3- Design display style



Example of steps to design a "student grades" table:

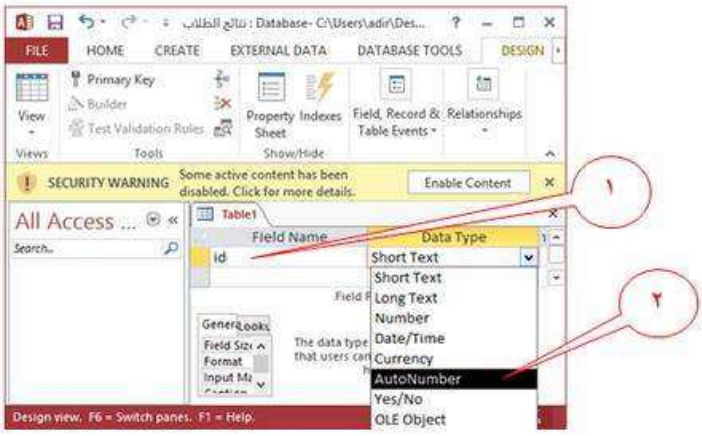
In the table design window, the table fields are created by typing the field name, selecting the field statement type.

- Type the following field names and choose their statement type:

- **Student number field which is id**
- **Name**
- **Arabic grade**
- **English grade**
- **Computer grade**

1- Type the field name "id" student number

2- Choose the field statement type from the drop-down list "AutoNumber".



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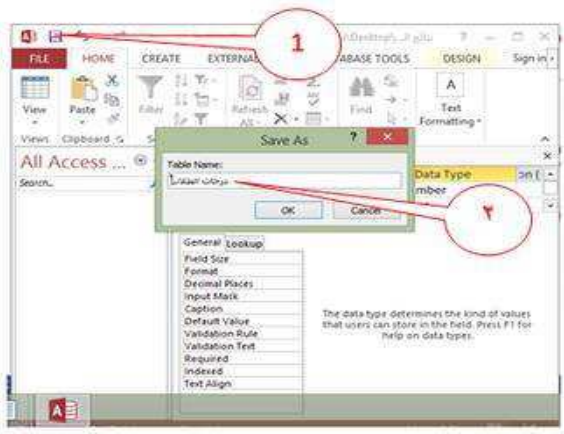
3- Write the rest of the field names, and select the appropriate statement type for each field.

❒ Save the table:

1-Click the Save icon

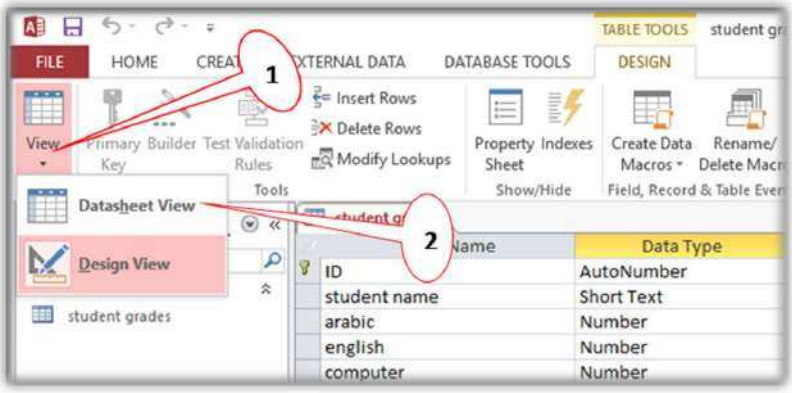
2-Type the table name "Student Grades"



B- Datasheet View

To enter and view the table data.

1- Choose "View



2- Choose "Datasheet View", and the data view window will appear.

3- The following window will appear:

4- Enter your data and your colleagues' data in the table.

5- To return to the design mode from "View", select "Design View".

❒ Primary Key:

→ It is a field in a database table that is used to uniquely identify each record in that table, and the primary key value is never repeated within the same table.

→ Primary Key for the "Student Grades" table: The "id" field was chosen as the primary key because it is an automatic number given to the student, and each student has a unique number that is not repeated with any other student.

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Questions and exercises

Put √ Or × :-

1- Databases are a collection of data and information that are not related to each other ( )

2- Databases are where information is stored and managed manually using programs and applications. Customized ( )

3- A database is an organized collection of data relating to a particular subject ( )

4- Databases are used to store student data in school ( )

5- The primary key value can be repeated within the same table ( )

6- In a spreadsheet, each row represents more than one record of data ( )

7- A spreadsheet is the only source of data within a database ( )

8- Databases are difficult to use on websites ( )

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Lesson Nine: Forms & Queries

Form:

It is a graphical interface designed specifically to interact with data stored in the database. It is a screen that displays specific information from the database and allows the user to enter, modify or delete this information in an organized and convenient way.

Create a form:

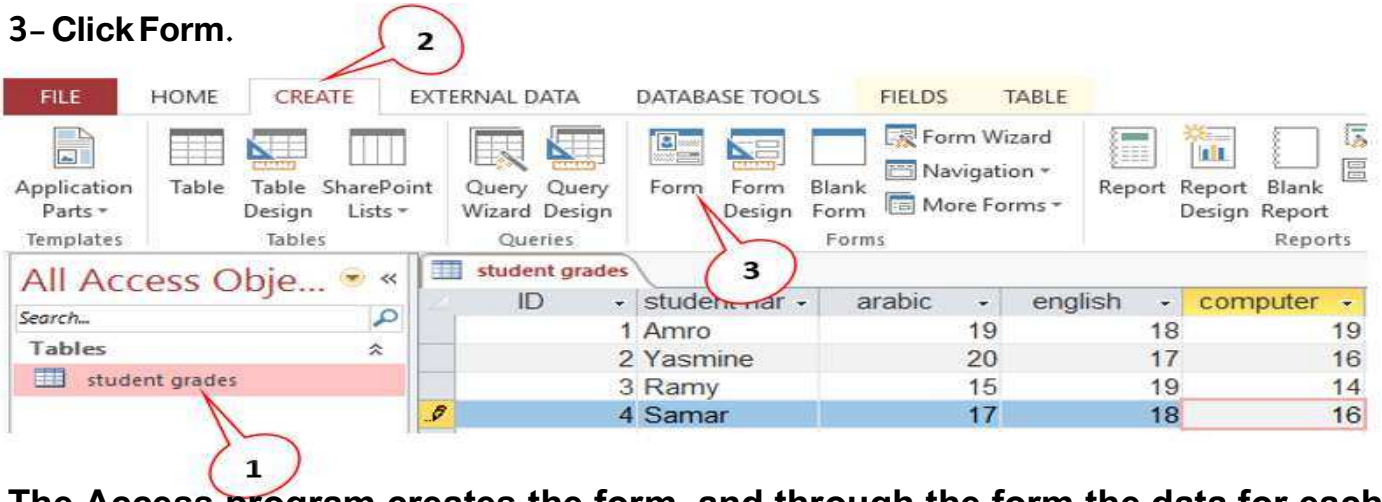
A new form can be created under the name "Enter Student Grades" using the Form Wizard

Example: To create a form from the current table "Student Grades"

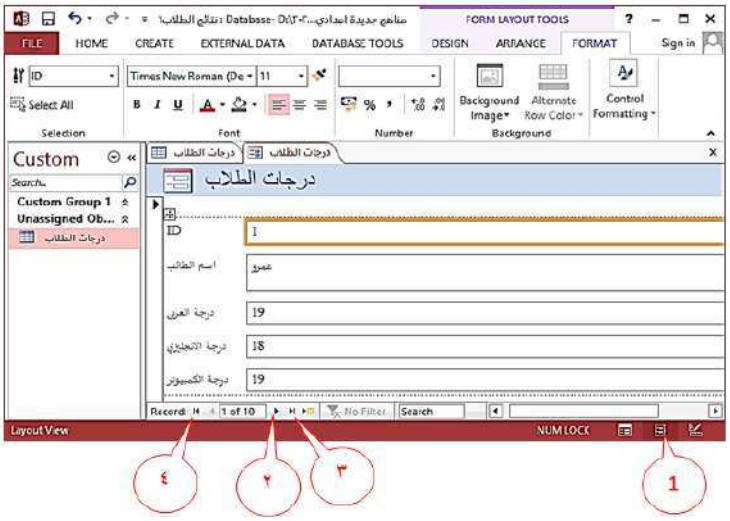
1-Click on the table name "Student Grades" in the Navigation Pane on the left of the screen, and the data for the "Student Grades" table will appear on the right of the screen.

2- Choose the Create tab.

3- Click Form.



The Access program creates the form, and through the form the data for each student's record is displayed individually, as in the following figure:



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❑ Create a form in LayoutView –:

1– The current window is called Layout view, where the data of the first record is displayed.
2– Click on the "Next record" icon to display the data of the next record.
3– Click on the "Last record" icon to display the data of the last record.
4– Click on the "First record" icon to display the data of the first record.

Note that:

- The form is used to enter and modify data in the "Student Grades" table.
- All data entered through the form appears in the "Student Grades" table.
- Data can be entered through the data table or through the form.
- There are several other ways to create a form in an Access desktop database.

Queries in databases:

"Queries are tools used to obtain data from the database according to "specific criteria or conditions", and through the query, information can be obtained from the database based on the data stored in the database.

Examples of queries:

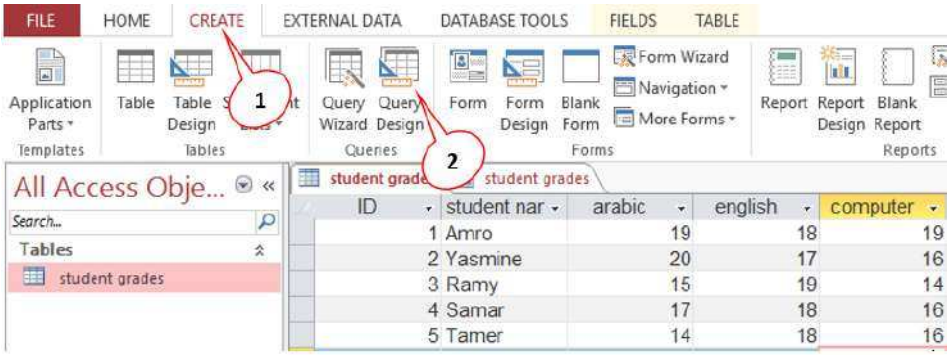
→ Create a query to display data from a student's record.
→ Create a query to display a list of students who scored more than 18 marks in English.

Create a new query using the "Query Design" method

Access provides many methods that allow you to create a query, including, for example, using the Query Design view, which is the method that we will discuss and is appropriate for what is required to be created.
When using the Query Design method, you can have greater control over the details of the query design.

Steps to create a new query using the Query Design method:

1– Choose the Create tab
2– Click on Query Design.



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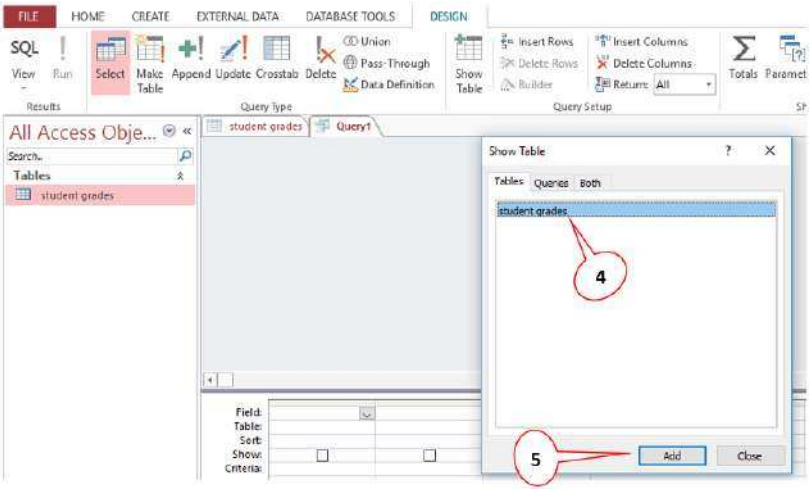
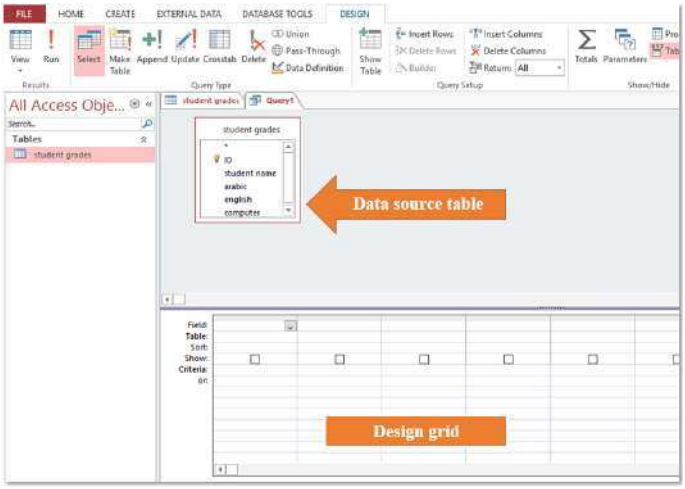
3- The following screen appears:



4- Select the data source table to be used, which is "Student Grades".

5- Click Add, then Close.

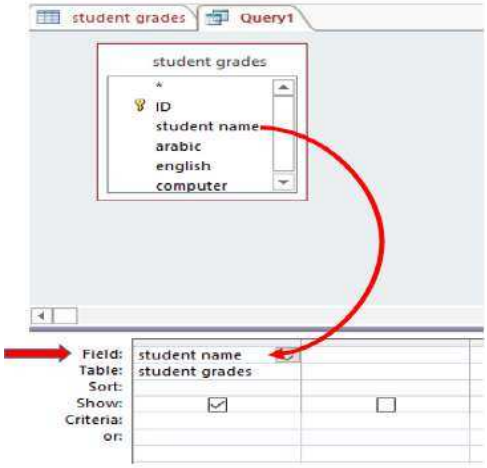
The "Design View" window will appear, which is divided into two parts, the upper part contains the data source table, and the lower part is the query design grid.



Now you are required to create a query: It shows the names of all students and the Arabic grade only for each student.

- In this query we will deal with the fields of the "Student Grades" table:

- To do this, the field names are listed on the query design grid.



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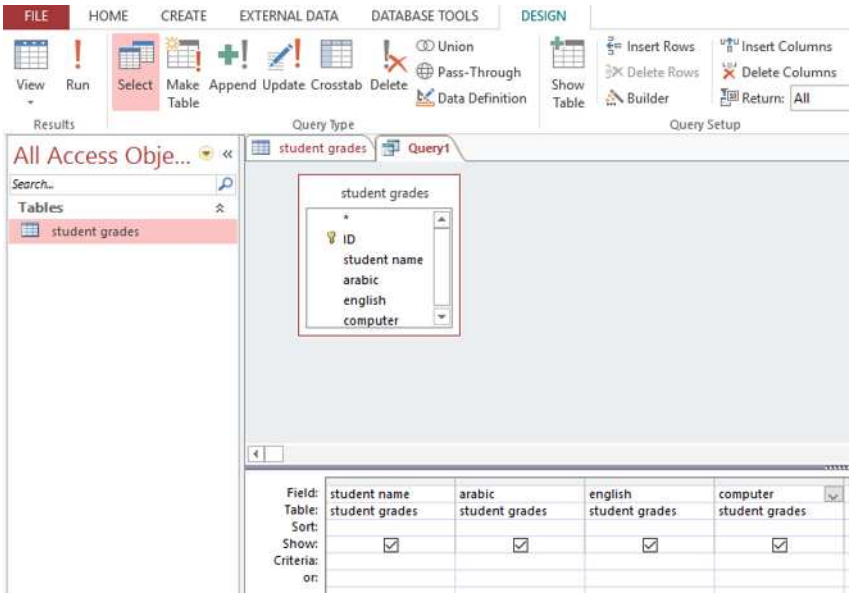
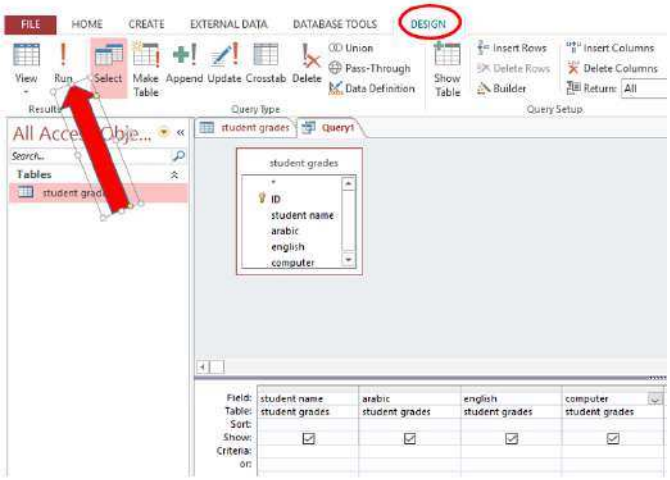
Add a field to the design grid:

- Use the drag and drop method for the field name.
- Drag the field from the data source table in the upper part of the "Query Design" window to the design grid, specifically to the "Field" field row in the lower part of the "Query Design" window.
- When you add a field by drag and drop in the design grid, Access automatically fills the Table row in the design grid with the name of the table used "Student Grades", to show the data source of this field.
- Insert the rest of the table fields to the design grid as shown in the following screen.



Execute the query:

- On the Design tab
- Click on the Run icon in the Results group



- The query result appears in the form of a table, showing all student data.

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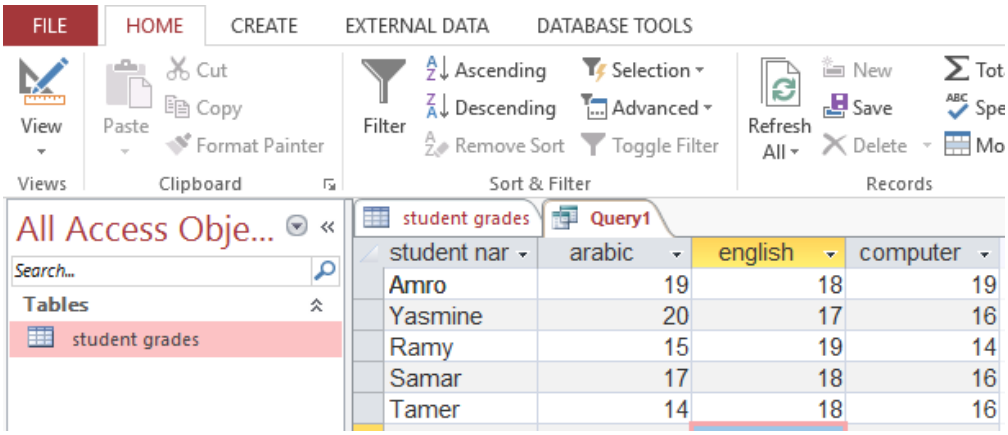


However, what is required is to create a query that shows the names of all students and the Arabic score only for each student.

Hide a field or fields from the query result:

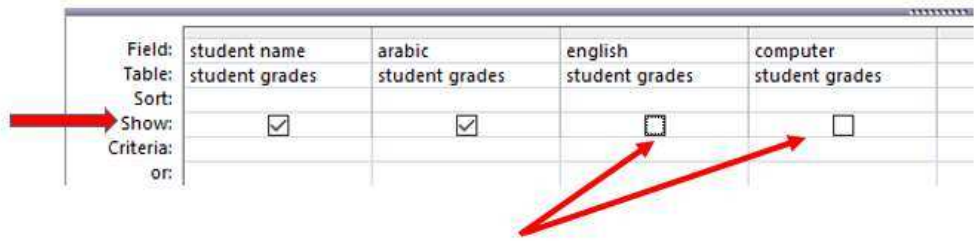
- To hide one or more fields from the query result,

- From the "View" menu, choose "Design View"

- The query design window will appear.

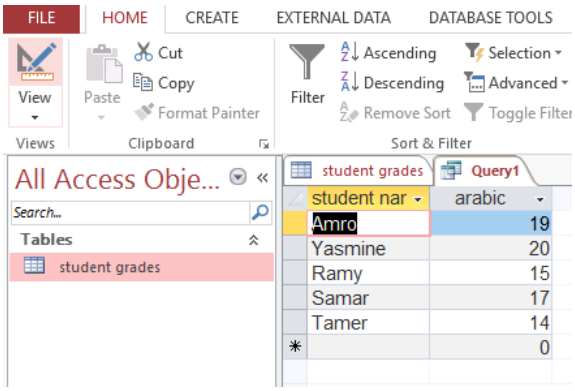
- Click on the ✓ sign in the check box in the Show row in the design grid below the columns Computer score and English score.

- The sign will be removed, which means hiding the field/fields in the query result.



- When you remove the ✓ sign from the English score and computer score columns in the Show row in the design grid, this means that these two fields will not appear when executing the query.

- Click on the Run icon in the Results group and the result will appear as follows:



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Establishing criteria or conditions within the query:

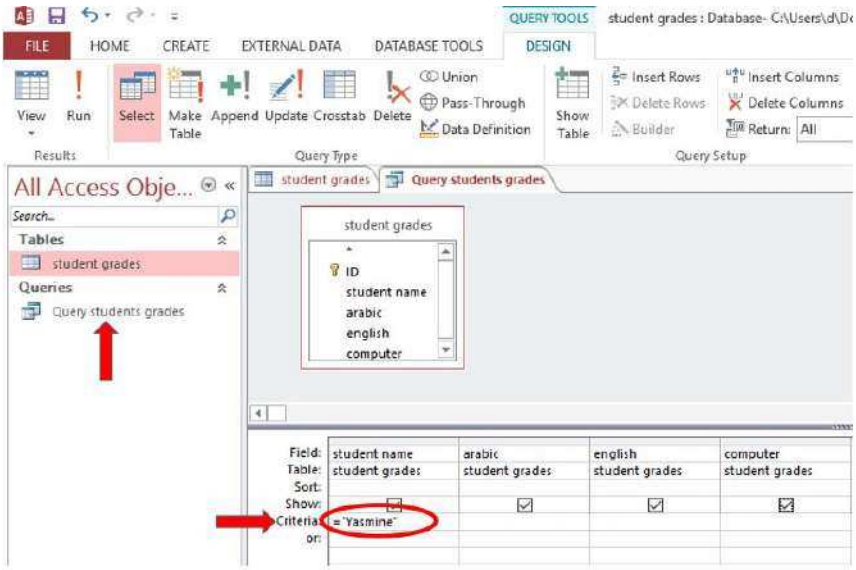
- The Criteria in a query helps you to identify specific items in an Access database.
- If a record matches all the criteria you entered in the query grid, the record will appear in the query results.

To add Criteria to a query, you must:

- Open the query in Design View.
- Type the criterion or criteria in the Criteria row.

For example: You are required to create a query to show only the data of the student Yasmin's record, steps:

- Type the search criterion ="ياسمين" in the "Student Name" column in the Criteria field.
- We write the condition in the column of the field "Student Name", and in the row Criteria



- Execute the query, the student record or records that meet the criterion or condition are displayed

student name	arabic	english	computer
Yasmine	20	17	16

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Questions and exercises

Put √ Or × :-

1- A form is a graphical interface designed to interact with data stored in a database ( )

2- We use the form to enter, modify or delete this information in an organized and convenient way ( )

3- A new form called "Enter Student Grades" can be created using the Form Wizard ( )

4- All data entered through the form does not appear in the "Student Grades" table ( )

5- Data can be entered through the data table or through the form. ( )

6- There are several other ways to create a form in anAccess desktop database ( )

7- We use the design view method Query Design to display query results ( )

8- The query design window is divided into three parts ( )

9- The query design window is divided into two parts. The upper part is the query design grid ( )

10- The query design window is divided into two parts: the lower part is the data source table. ( )

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Lesson Ten: Your Digital Project

Stages of Project Implementation:

The stages of any successful project are divided into main interconnected stages, each of which contributes to achieving the desired goals. They can be summarized as follows:

1. Stage One: Start the Project

- **Determine** a clear, achievable idea.
- **Determine** specific, measurable, and achievable goals.

2. Stage Two: plan the project

- **Develop** detailed plans and studies that include a work plan.
- **Develop** a specific timetable for each stage of the project.

3. Stage Three: Implement the project

- **Form** a work team.
- **Assign** roles and responsibilities to each individual.
- **Start** work, the actual implementation of the project begins according to the plans set.

4. Stage Four: Assess the project

- **Follow-up and evaluation:** The progress of the project is continuously monitored, performance is evaluated compared to the plan, and the necessary adjustments are made to the course of work.
- **Problem management:** Potential problems that may face the project are identified and proactive steps are taken to mitigate or avoid them.
- **Delivery and evaluation:** The final project outputs are delivered.
- **Documenting lessons learned:** All lessons learned from the project implementation experience are documented, to benefit from them in future projects.
- **Offering thanks and appreciation** to all those who contributed to the completion of the project.

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Now let's implement the steps of one of the projects:

First – The project initiation stage:

Proposing ideas for projects:

The students propose ideas for some projects and the goal of each project.

Suggested project name: The Great Nile and the Rivers of the World

Objectives of the Great Nile and the Rivers of the World project:

- **Study natural phenomena** The study of rivers contributes to understanding natural phenomena associated with the water cycle, such asfloods and droughts, and their impact on climate and the environment.
- **History and**Heritage Rivers play an important role in history.And the civilizations of peoples, and studying them helps to understand the development of civilizations and their interaction with the aquatic environment.
- Studying the Nile River and other rivers is a journey rich in knowledge. The benefit contributes to a better understanding of the natural world and management. Sustainable water resources and economic development and social, and promote human well-being

Second – Project planning stage: –

❑ **Data and information you need to collect for the project : –**

- Find the five most famous rivers in the world.
- Design a table containing data for the five most famous rivers, including the name of the river – its length – the name of the source country – the name of the downstream country – the number of countries it passes through – the name of the continent in which the river is located.
- Search for pictures of this river.
- Search for a video that shows information about the river.
- Use reliable websites and reliable sources.
- Use the Egyptian Knowledge Bank.
- Search for more information about each of the five rivers.
- Search for the length of the Nile River – the name of the source country – the name of the

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.downstream country – the number of countries it passes through

•Ask your social studies teacher to verify the data and information you and your colleagues have collected.

❑ **Tools, devices and applications required to be prepared and equipped for the project :**

• Determine the computer and the required peripherals.

• Prepare and equip the applications and programs used.

• Determine the time period for the project.

•Determine direct and indirect communication tools to exchange ideas and opinions and exchange data and information.

•Determine reliable sources

Third – Project implementation stage:

• Forming work groups

• ،dividing tasks among colleagues ،

• ،determining the tasks of each colleague

• starting work to implement the project according to the plans set.

Fourth – Project evaluation and assessment stage:

•Continuous follow-up by the teacher and the head of each group to monitor the progress of the project.

•Identifying the problems facing the work group in implementing the project and finding solutions for them by the students and with the help of Teacher.

•Collect assignments, compile the project and present it to The group to express its opinion and amend it if necessary.

• Presentation of the project of each working group In front of all students.

• Students choose the best project. Express

•thanks and appreciation to all who contributed to the completion. The project

❑ **Applications you need during the implementation of the project**

Applications from: Google App

. Google Docs: A cloud application to create a text file.

. Google Sheets: A cloud application to create spreadsheets.

. Google Slides: A cloud application to create a presentation.

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Sign in using a Google Account to deal with Google Drive:

1- Type Google.com in the browser

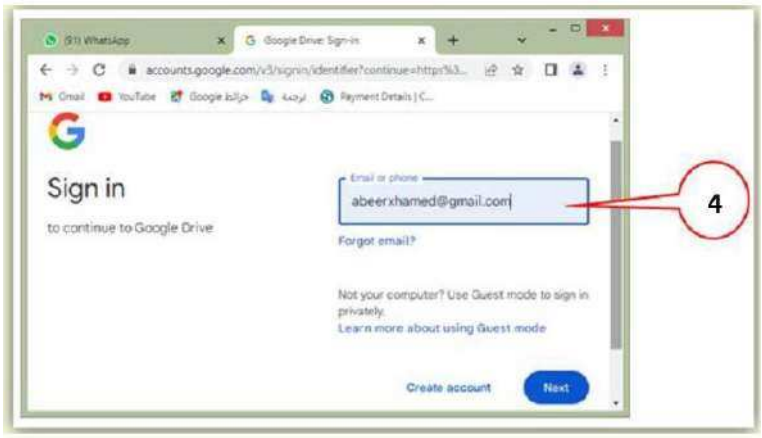
2- Click the Google apps icon.

3- Select the Drive icon.

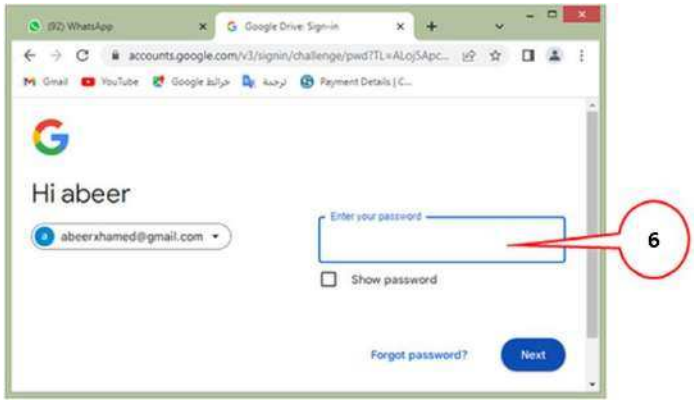
The following screen appears.

4- Enter the username.

5- click "Next."



6- Enter the password then click Next.



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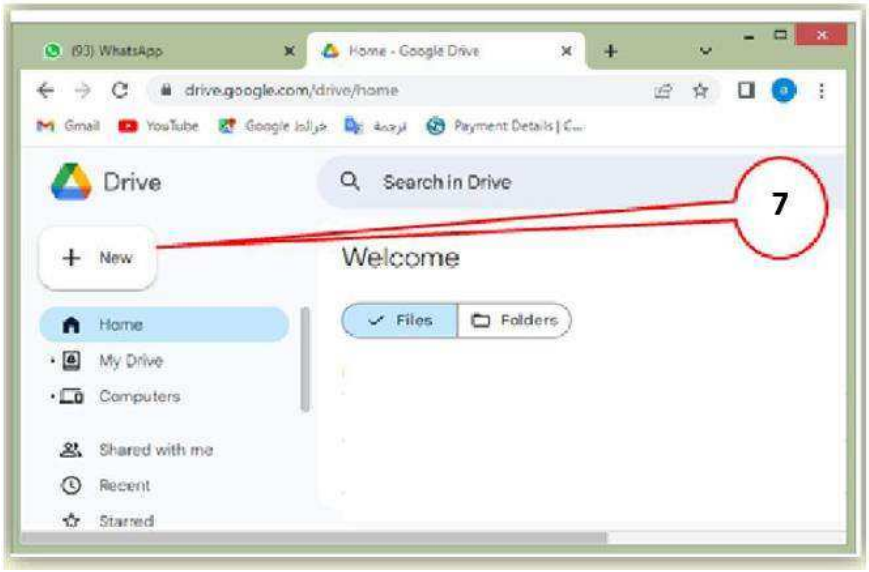
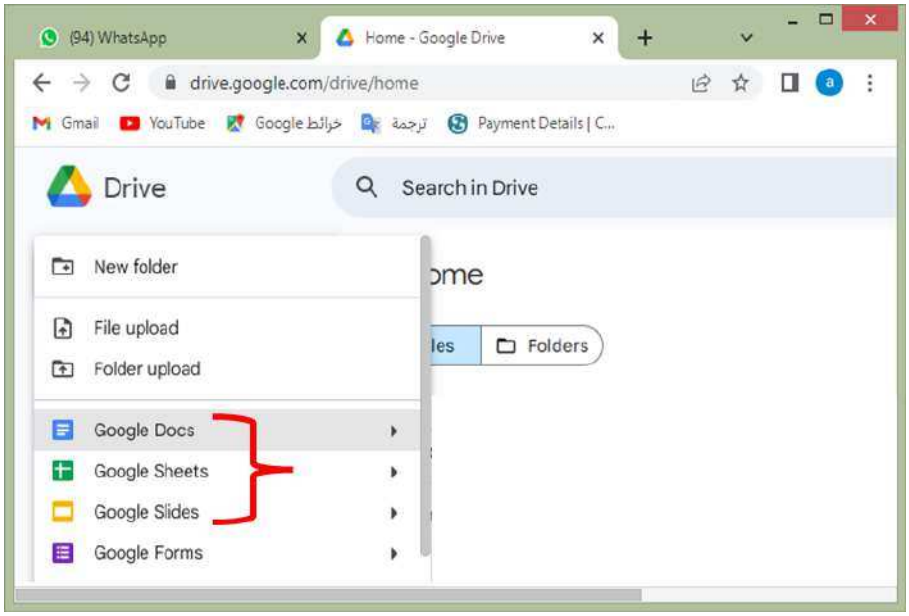
7- Now, registration has been completed using your Google account. To present the screen in front of you.

Click NEW



Now,

you can open the different cloud applications that appear in front of you in the list, including Google Docs, Google Sheets, Google Slides, and use them in your project.



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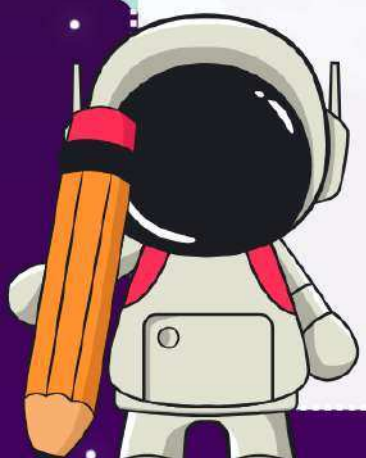
Model Answer



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Lesson ١				
first question				
1. X	2. X	3. ✓	4. ✓	5. X
The second question				
1. A	2. B	3. A		
Lesson ٢				
first question				
1. X	2. ✓	3. ✓	4. X	
The second question				
1. B	2. A	3. C	4. B	
Lesson ٣				
first question				
1. X	2. ✓	3. ✓	4. ✓	
The second question				
1. B	2. B	3. B	4. A	5. A	6. B
Lesson ٤				
first question				
1- B	2- A	3- B	4- A		
The second question				
1- ✓	2- ✓	3- ✓	4- ✓		
Lesson Five				
first question				
1- B	2- D	3- B	4- A	5- B	6- D
7- A	8- C	9- B			
Lesson ٦				
1- B	2- B	3- A	4- A	5- A	6- C
7- A	8- B	9- C	10- D		

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Lesson ٧				
first question				
1. A	2. C	3. B	4. A	5. A
6. B	7. B	8. B	9. B	
Lesson ٨				
first question				
1. X		2. ✓	3. ✓	4. ✓
5. X	6. X	7. X	8. X	
Lesson Nine				
first question				
1. ✓	2. ✓	3. ✓	4. X	5. ✓	6. ✓
7. ✓	8. X	9. X	10. X		

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MR

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موقع الدكتور محمد رزق
Dr.MoRizK